What is claimed is:

1. A method for controlling an air fuel ratio in a gas furnace which drives a fan motor with a specified voltage, measures each cycle time of pulse signals generated during revolution of the fan motor, detects an RPM(Revolution Per Minute) of the fan motor according to the measured cycle time, and controls opening of a gas valve based on an average voltage of a PWM(Pulse Width Modulation) signal applied from a controller, the method comprising the steps of:

detecting data of variation in calorific value according to variation in a PWM count value, and data of variation in air quantity according to variation in the fan motor RPM;

detecting data of variation in the PWM signal count value for gas valve control according to the variation in the fan motor RPM by using the calorific value variation data and the air quantity variation data, and deriving a relational expression between the fan motor RPM and the PWM count value by using the PWM signal count value variation data; and

applying the detected RPM to the relational expression until a calorific value reaches a level preset in a temperature control mode selected by a user at a time of performing a burning operation of the gas furnace, and accordingly controlling the gas valve with the PWM count value.

17

2.   A method for controlling an air fuel ratio in a gas furnace which drives a fan motor according to a predetermined pulse signal in a state that an RPM per count value of each cycle of pulses is preset, counts each cycle of the pulse signals, detects the RPM by reading the RPM according to the pertinent count value among the preset RPMs, and controls a gas valve by an average voltage of a PWM signal applied from a controller, the method comprising the steps of:

detecting data of variation in calorific value according to variation in the PWM count value, and data of variation in air quantity according to variation in the fan motor RPM;

detecting data of variation in the PWM signal count value according to the variation of the fan motor RPM by using the calorific value variation data and the air quantity variation data, and deriving a relational expression between the fan motor RPM and the PWM count value by using the PWM signal count value variation data; and

applying the detected RPM to the relational expression until a calorific value reaches a level preset in a temperature control mode selected by a user at a time of performing a burning operation of the gas furnace, and accordingly controlling the gas valve with the PWM count value.

18

3. A method for controlling an air fuel ratio in a gas furnace which drives a fan motor according to a predetermined pulse signal, counts each cycle of the pulse signals, detects an RPM from the count value and a linear function of the RPM, and controls a gas valve with an average voltage of a PWM signal applied from a controller, the method comprising the steps of:

detecting data of variation in calorific value according to variation in the PWM count value, and data of variation in air quantity according to variation in the fan motor RPM;

detecting data of variation in the PWM signal count value according to the variation of the fan motor RPM by using the calorific value variation data and the air quantity variation data, and deriving a relational expression between the fan motor RPM and the PWM count value by using the PWM signal count value variation data; and

applying the detected RPM to the relational expression until a calorific value reaches a level preset in a temperature control mode selected by a user at a time of performing a burning operation of the gas furnace, and accordingly controlling a gas valve with the PWM count value.

19